

Addendum to Nutrient Management Plan:

By my signature below, I affirm that I have read, understand, and will comply with the following stipulations from Tennessee's CAFO rule (1200-4-5-.14) that apply to my CAFO operation.

- 1) All clean water (including rainfall) is diverted, as appropriate, from the production area.
- 2) All animals in confinement are prevented from coming in direct contact with waters of the state.
- 3) All chemicals and other contaminants handled on-site are not disposed of in any manure, litter, process wastewater, or storm water storage or treatment system unless specifically designed to treat such chemicals and other contaminants.
- 4) All sampling of soil and manure/litter is conducted according to protocols developed by UT Extension.
- 5) All records outlined in 1200-4-5-.14(16)d-f will be maintained and available on-site.
- 6) Any confinement buildings, waste/wastewater handling or treatment systems, lagoons, holding ponds, and any other agricultural waste containment/treatment structures constructed after April 13, 2006 are or will be located in accordance with NRCS Conservation Practice Standard 313.
- 7) Drystacks of manure or stockpiles of litter are always kept covered under roof or tarps.
- 8) An *Annual Report* will be written for my operation and submitted between January 1 and February 15 of each year. It will include all information required by rule [1200-4-5-.14(16)g].

Anthony R Miller
Signature of CAFO Operator:

3-26-2011
Date:

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THIS IS TO ACKNOWLEDGE THAT THE CNMP WAS WRITTEN WITH LANGUAGE ABOUT 25 YR, 24 HOUR RAINFALL EVENT. WE REALIZE IT SHOULD BE STATED 100 YR, 24 HR RAINFALL EVENT.

Name Anthony R Miller 3-26-2011
Date

This facility is enclosed + no rain reaches
letter.

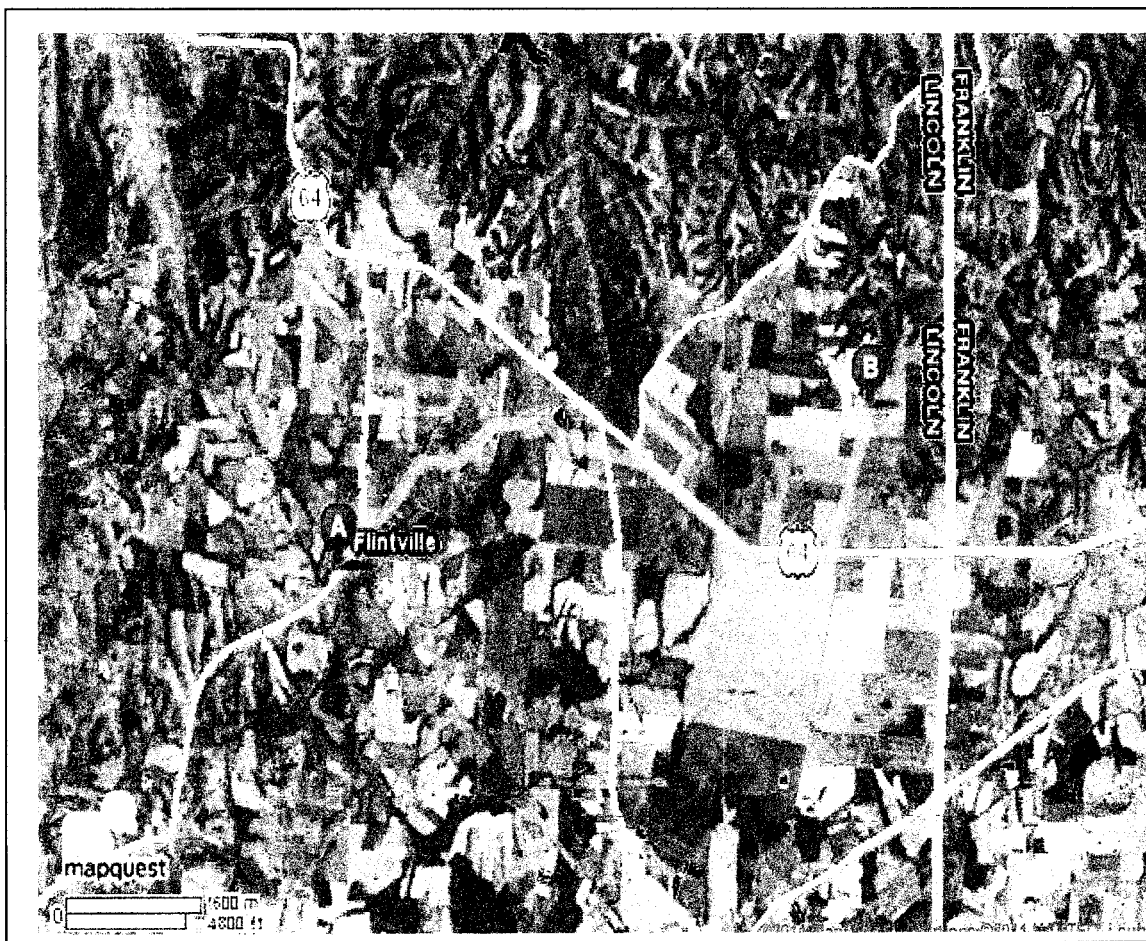
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Comprehensive Nutrient Management Plan

Operation Name: Anthony R. Miller
Owner Name: Anthony R. Miller
Operation Address: 164 Hotel Road
Flintville, TN 37335
Operation Telephone Number: (931) 937-7600
Operator's Name: Anthony R. Miller



Map 1: Highway Location Map

Driving Directions: (From 241 Flintville Rd go NE on Tn-275 toward Snow Lake Lane .4 mi; Turn R onto Pendergrass Rd go 2 mi; Turn R onto US 64 go 3.1 mi; Turn L onto Hotel Road go 1.1 mi; Hotel 160 is on R)

Hydrologic Unit Code (Facility): 0603003

Coordinates (Facility): Latitude: 035°04'41.882"N
Longitude: 086°19'38.527"W

Prepared by: Daphne Dianne Jenkins

United States Department of Agriculture-Natural Resources Conservation Service

Lincoln County, TN

In Cooperation With the

Lincoln County Soil and Water Conservation District

Date Prepared: 3/25/2011

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1. CNMP Signature Page

Owner/Operator

Owner/Operator: Anthony R. Miller	Phone:(931) 937-7600
Address: 164 Hotel Road City: Flintville , TN 37335	
Farm(s)#:	Tract(s):

The following people have assisted with the development of the CNMP and certify that their element meets all applicable NRCS standards.

CNMP Total Plan

Signature: <i>Daphne D Jenkins</i>	Date: <i>3-26-2011</i>
Name: Daphne Dianne Jenkins	
Title: CNMP Writer, CCA, TSP	

Owner/ Operator

As the owner/operator, I certify that as the decision-maker, I have been involved in the planning process and agree that the items listed in each element are needed. I understand that I am responsible for keeping all necessary records associated with the implementation of this CNMP. It is my intent to implement this CNMP in a timely manner as described in the plan.	
Signature: <i>Anthony R Miller</i>	Date: <i>3-26-2011</i>

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1.1. Introduction

This CNMP is for Anthony R. Miller Farm located at 164 Hotel Road, Flintville, TN 37335. This facility is owned and operated by Anthony R. Miller. All correspondence should be mailed to 160 Hotel Road, Flintville, TN 37335. This facility is a layer operation with 3 barns and a litter/composter shed with bins that are 6' high X 8' long X 6' deep. The facility is located on @ 40 ac. No litter is spread on the land around the buildings on this site. The barns are 42' X 600' and the litter/composter is 24' X 60' covered. His integrator is Tyson Foods. He also has two generators ~~for mortality~~. Each barn has @ 13,500 hens and 1,250 roosters for a total @ 44,250 birds. They stay on site for @ 10 months with a month between flocks. The litter is cleaned out once a year. All litter goes off site to a third party. The litter/composter shed seems to be a no discharge facility. The litter/composter shed and the barns were built to Tyson Food specs. Tyson Foods contact information is 931-684-8180.

Table 1: Resource Concerns

Soil Erosion Concerns	Water Quality Concerns	Other Concerns Addressed
Maintain grass around buildings and in water diversions around the barns.	Protect ground and surface waters.	Odor and pathogen management and dead animal disposal

The soil erosion concerns are mild at this time. Maintenance of grass-gravel areas around the barns and loading areas already exist and are adequate. If a problem arises, the use of the NRCS 342 Critical Area Planting guidelines will be helpful.

Protect ground and surface waters by assuring that the water drains away from well head and barns. This is done.

The odor management and dead animal disposal will be addressed in the O and M.

1.1.1. Confined Animal Feeding Operation (CAFO) Rule Compliance 1200-4-5-.14

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2. Litter Handling and Storage

This element addresses the components and activities, existing and planned, associated with the production facility, feedlot, litter and wastewater storage and treatment structures and areas, and any area used to facilitate transfer of litter and wastewater.

2.1. Litter Handling and Storage methods

These 3 barns with a total of 44,250 birds will be cleaned once a year. The litter will be removed at that or stored in the litter/compost shed until removal is possible. The farmer states that @ 700 tons of litter are removed yearly by a third party. As the litter is removed he will give the third party a copy of the manure analysis and keep of records of how much and when the litter is removed.

2.1.1. Litter Production Information

Litter production under these conditions is calculated as shown in the tables below. Data is from the software "Animal Waste Management" or "Nutrient Budget Calculator" using NRCS data.

All litter produced at the facility will be transported off site by a third party.

Following this page is the NRCS Nutrient Budget Calculator and a hand written explanation of the litter and compost calculations.

Table 2: Current animal numbers, sizes, and locations.

	Animal 1
Location (Structure/Pasture):	Barns
Animal Housed:	Poultry-Layers
Animal Phase:	Hens and roosters
Number of Animals (In Structure):	@ 44,250 total /14,750 per barn
Number of Structures (Per Animal/Phase)	Birds will stay in same barn for 10 months
Average Weight:	8 lbs
Time In Location:	10 months
Number of Herds/Flocks (Per Year):	1.1
Storage Structure Receiving Manure:	Litter stays in the barns until cleanout at end of cycle/ possible stored in litter/composter for a while

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Anthony Miller Poultry System Daphne Dianne Jenkins March 24, 2011 <i>(This sheet generates nutrient values and volumes for poultry litter)</i>	
Poultry Type	Broiler Breeders
Number of Birds	44,250
Method of Dead Bird Disposal	Composting
Mortality Rate	4.0 %
Flocks per Year	1.1 flocks per year
Pounds of Litter Produced/yr	1,635,480 lbs/yr
Volume of Litter Produced/yr	42,480 cu.ft./yr
Tons of Litter Produced/yr	818 tons/year
Tons of Litter sold or given away	800 tons/year
Tons of Litter Needed for Composting	
a. Dead Birds Produced	7 tons/year
b. Litter Needed	20 tons/year
Tons of Compost to Spread	21 tons/year
Tons of Litter/Compost to Spread	821 tons/year
Method of Storage & Cleanout	Broiler (breeder)
Nutrients Produced	45,115 lbs of N per yr
	42,692 lbs of P ₂ O ₅ per yr
	33,661 lbs of K ₂ O per yr
Nutrient Value of Litter/Compost	55 lbs of N per ton
	52 lbs of P ₂ O ₅ per ton
	41 lbs of K ₂ O per ton

(Version 10.1, Feb 2007)

The NRCOS over calculates these values. Farmer said he reported 700 Ton last yr.

I have included a break down of how NRCOS calculates. all figures for nutrients are based on NRCOS calculator.

[Signature]

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LITTER FACILITY DESIGN WORKSHEET

Farm Name: Anthony Miller
Date: March 26, 2011
Prepared By: Daphne Dianne Jenkins
(Version 10.1, Feb 2007)

Calculation of volume of poultry litter to be stored

(Enter Values in Yellow Boxes - Calculated Answers appear in Blue Boxes)

Number =	<u>44,250</u>	No.	Number of Birds in Flock
Flocks =	<u>1.1</u>	No.	Number of Flocks per Storage Period (see table to right)
Litter =	<u>35</u>	lbs.	Pounds of Litter per Bird per flock
Density =	<u>35</u>	lbs./ft ³	Density Factor

Manure Volume = (Number * Flocks * Litter) / Density

Volume = 48,675 ft³

Calculation of storage building area and length

(Enter Values in Yellow Boxes - Calculated Answers appear in Blue Boxes)

W =	<u>24</u>	feet	Inside Width of Building
h _p =	<u>6.0</u>	feet	Height of manure/litter pile in center (7.0 feet)
h _w =	<u>10.00</u>	feet	Height of wall (4 feet 10 inches)
Open =	<u>2</u>	No.	Number of Open ends
Post =	<u>8</u>	feet	Spacing between posts

Area [A] = (h_w * W) + [(h_p - h_w) * 0.5 * W]

Nominal Length [L] = (Volume / Area)

Total Length of Wall [L_t] = L + L_o

A =	<u>192</u>	ft ²	Cross sectional area of pile
L =	<u>40</u>	feet	Nominal Length
L _o =	<u>8</u>	feet	4.0 feet x # of open ends
L _t =	<u>40</u>	feet	Total Length of wall
L _{rnd} =	<u>40</u>	feet	Rounded Total Wall Length to nearest Post Spacing
Vol _{act} =	<u>6912</u>	ft ³	Actual Volume of Storage

Remarks: Litter storage with composter

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Litter Calculations

$$\begin{array}{r}
 13,500 \text{ hens} \\
 1,250 \text{ roosters} \\
 \hline
 14,750 \text{ total/barn} \\
 \times 3 \text{ barns} \\
 \hline
 44,250 \text{ total birds in 3 barns}
 \end{array}$$

$$\begin{array}{r}
 44,250 \text{ birds} \\
 \times .04 (4\% \text{ mortality}) \\
 \hline
 1,770 \text{ birds (dead in 3 barns)}
 \end{array}$$

$$\begin{array}{r}
 44,250 \text{ birds total} \\
 - 1,770 \text{ dead} \\
 \hline
 42,480 \text{ birds live / flock} \\
 \times 35 \text{ lb litter produced / bird} \\
 \hline
 1,486,800 \text{ lb litter / flock} \\
 \times 1.1 \text{ flocks} \\
 \hline
 1,635,480 \text{ lb litter/cy} \div 35 = 42,480 \text{ cu ft} \\
 \div 2000
 \end{array}$$

$$\begin{array}{r}
 817.7 \text{ Ton / NRCS calculator} \text{ / } \text{~~for spreading~~} \text{ litter produced} \\
 700 \text{ Tons Farmer amount}
 \end{array}$$

$$\begin{array}{r}
 817.7 \text{ ton (NRCS calculator)} \\
 - \text{ton needed for composting} \\
 \hline
 \text{ton litter to remove NRCS calculator} \\
 700 \text{ Tons / Farmer}
 \end{array}$$

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Litter needed for composting

$$\begin{array}{r} \textcircled{1} \quad 1770 \text{ dead birds / 1.1 flocks} \\ \times \quad 8 \text{ lb average wt} \\ \hline 14160 \text{ lbs} \\ \div 2000 \\ \hline 7.1 \text{ Ton dead birds} \end{array}$$

$$\begin{array}{r} \textcircled{2} \quad 7.1 \text{ tons dead birds} \\ \times 2.5 \text{ tons of litter needed to compost 1 Ton bird} \\ \hline 17.75 \text{ tons of litter needed for 7.1 Ton dead birds} \end{array}$$

$$\begin{array}{r} \textcircled{3} \quad \text{To calculate compost to spread} \\ 7.1 \text{ ton birds} \\ + 17.8 \text{ ton litter} \\ \hline 24.9 \\ \times .858 \text{ factor for breakdown} \\ \hline 21.36 \text{ or } 21.4 \text{ Tons to spread} \end{array}$$

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$$\begin{array}{r} \textcircled{4} \quad \text{Compost and litter to spread (leave)} \\ 817.7 \text{ ton produced} \\ - 17.8 \text{ ton for composting} \\ \hline 799.9 \text{ ton left} \\ + 21.4 \text{ ton compost + litter to leave} \\ \hline 821.3 \text{ tons} \quad (700 \text{ Tons}) \text{ Farmer} \end{array}$$

$$\begin{array}{r}
 N \\
 821 \\
 (55,2) \quad 55 \\
 \hline
 45115
 \end{array}$$

$$\begin{array}{r}
 P \\
 821 \\
 (52,5)52 \\
 \hline
 42692
 \end{array}$$

$$\begin{array}{r}
 K \\
 821 \\
 (41,4) \quad 41 \\
 \hline
 33661
 \end{array}$$

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2.1.2. Litter Storage Facilities

The barns are the main storage except at the end of the 10 month period. When litter is removed it goes off site or is stored in litter/composter shed for a short time.

2.1.3. Litter Storage Period

The length of litter storage will vary as to need for litter and the time of year it is to be removed from site by third party.

2.1.4. Litter Analysis and Export Quantity

Litter must be tested at least once per year for each storage facility (not each house/barn). If no storage facility exists or is planned, then a representative sample from the poultry houses must be tested. The results of the most recent test, or an historical average value for the operation, must be provided to litter haulers and vendors.

All litter produced by this operation will be exported off the farm. Projected quantity and composition is in the table below.

All litter produced by this operation will be exported off the farm. Projected quantity and composition is in the table below.

Copy of the litter analysis is found in the back under Litter Analysis tab.

Table 3: Litter Export Quantities and Nutrient Content

Frequency	Who is responsible for removal	Quantity	Unit	P	N	K	Ca	Mg	NH ₄
Varies with clean out time and weather.	A third party person.	@ 700	ton	55.2					52.2 41.4

Table 4: Total Available Nutrients

Parameter	2010	2011	2012	2013	2014
Total Available Phosphorus	45115	45115	45115	45115	45115
Total Available Nitrogen	42692	42692	42692	42692	42692
Total Available Potassium	33661	33661	33661	33661	33661

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2.1.5. Litter and mortality management plans (if applicable)

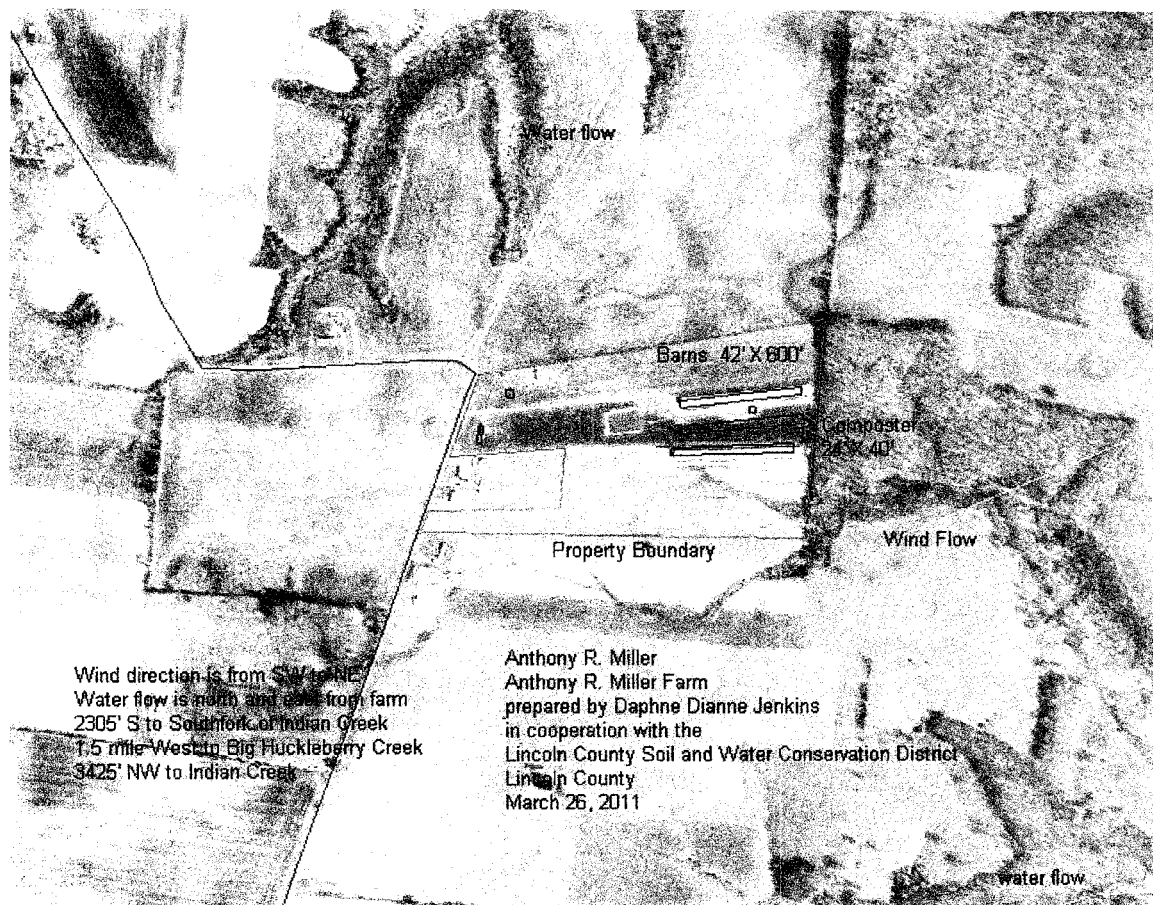
All litter goes off site. Mortality management is composting and/or incineration for normal deaths and integrator and state authority will determine what to do in case of catastrophic mortality.

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Map 2: Ortho Photo with Animal Facilities overlay



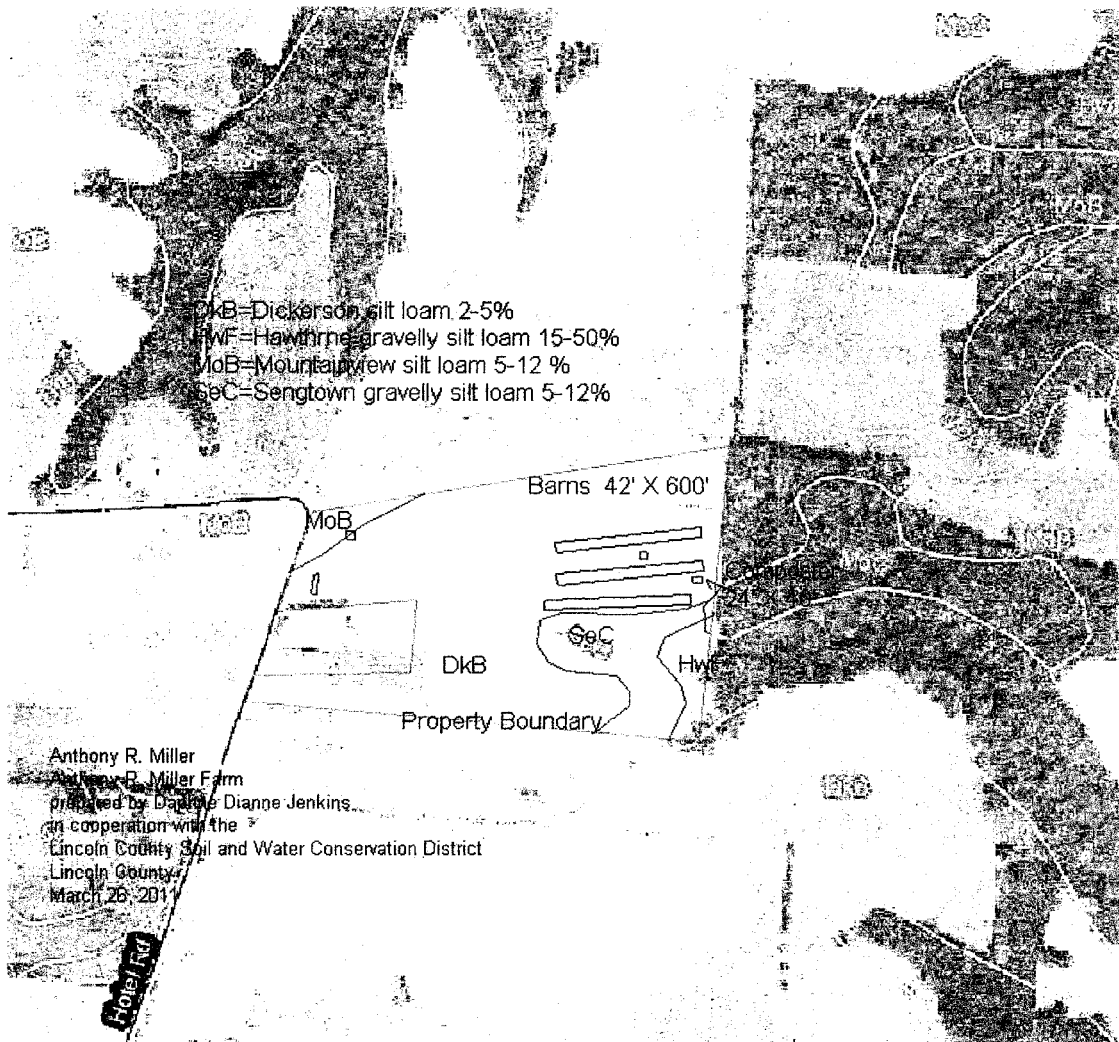
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0 0.12 0.25
miles



DESIGNED BY
Farm Works software

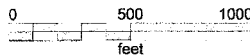
Map 3: Soil Maps and Map Unit Legend,



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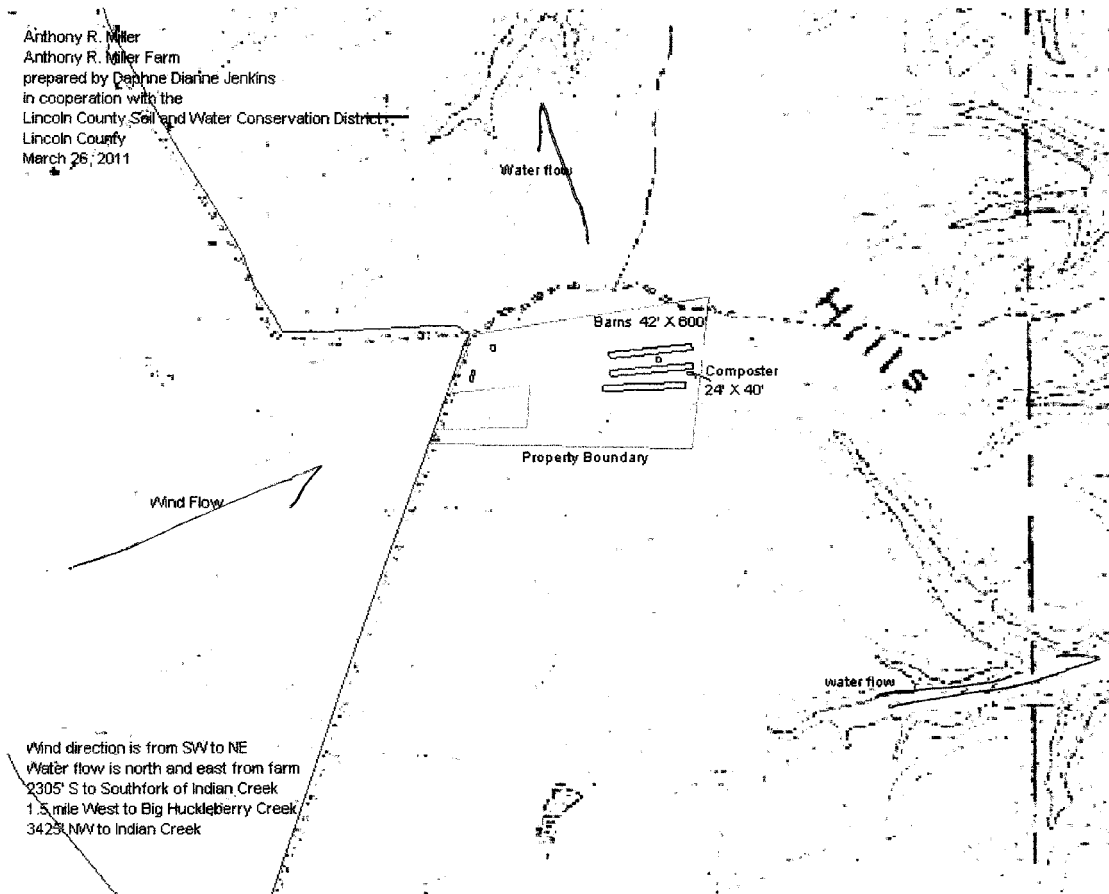
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Farm Works Software

Map 4: Topographic Map (Farm Scale)



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0 0.12 0.25
miles



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Farm Works Software



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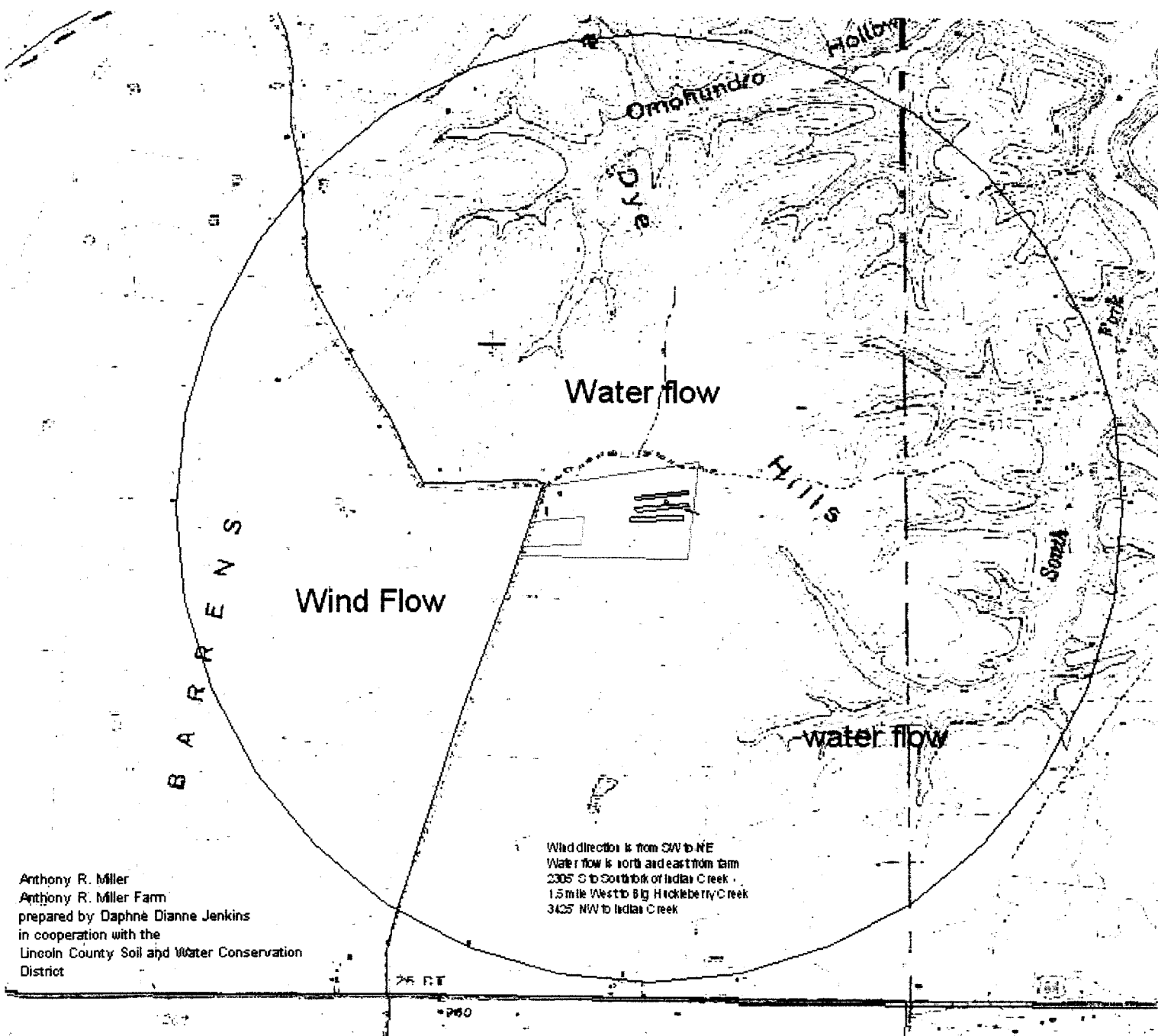
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Feed Management

Feed management activities may be used to reduce the nutrient content of litter, which may result in less land being required to effectively utilize the litter. Feed management activities may be dealt with as a planning consideration and not as a requirement that addresses specific criteria; however, AFO owners/operators are encouraged to incorporate feed management as part of their nutrient management strategy. Specific feed management activities to address nutrient reduction in litter may include phase feeding, amino acid supplemented low crude protein diets, and the use of low phytin phosphorus grain and enzymes, such as phytase or other additives. Feed management can be an effective approach to addressing excess nutrient production and should be encouraged; however, it is also recognized that feed management may not be a viable or acceptable alternative for all AFOs. A professional animal nutritionist should be consulted before making any recommendations associated with feed ration adjustment.

Specified Feed Management

Feed is supplied by Tyson Foods.

Any significant changes that would result in nutrient changes in the litter will require a re-evaluation of this plan (CNMP).

2.3. Mortality Disposal

This operation will use composting or incineration for normal mortality and contact the integrator and state vet for catastrophic mortality. Refer to Mortality Disposal in the Operation and Maintenance Section for the specifics of each method.

If the method of disposing of dead animals changes, the producer should notify the local USDA-NRCS offices.

2.4. Closure Plan

If the facility is closed in the future, the following will be done in 360 days.

All litter currently in the barns will be removed by a vender and exported off site. The most current manure analysis will be provided to anyone removing litter from the barns.

All dead birds in the houses at the time of closing will be burned/buried or transported to a rendering facility.

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2.5. Emergency Action Plan

The emergency action plan will be implemented in the event that animal by-products from the operation are leaking, overflowing, running off site or are in imminent danger of doing so. The operator should not wait until litter reach surface water or leave the property to consider that there is a problem. ***This plan should be posted in an accessible location for all employees at the facility.*** The following are some action items you should take.

1. Threatening Natural Occurrences

Prevent or minimize damage caused by threatening natural occurrences, such as tornadoes or strong storms associated with approaching fronts - actions include:

- a. Do not spread litter on fields just prior to an approaching storm.
- b. Do not spread litter on fields that flood during high rainfall events.
- c. Notify State Veterinary Office - Animal Emergency Response Coordinator (See Table below) or Local Animal Emergency Response Coordinator for relocation of animals if needed.

2. Personal injury

- a. Stop all other activities to deal with the emergency.
- b. Call for help (See Table below).

3. Catastrophic deaths – Disease Related

- a. Notify State Veterinary Office.
- b. Limit exposure to other birds.
- c. Prevent visitation by unnecessary people.
- d. Dead animals should be moved into an approved transport vehicle or an approved storage area or bin.
- e. Record date of catastrophic deaths, number of deaths, method and location of disposal.

4. Catastrophic deaths – Disaster Related

- a. Notify State Veterinary Office - Animal Emergency Response Coordinator immediately. (See Table below)
- b. Notify the integrator, Tyson Foods, or farm manager to remove useable animals.
- c. Remove mortality from the barns/houses.
- d. Dispose of mortality in the manner given in this CNMP for emergency dead animal disposal.
- e. Record date of catastrophic deaths, number of deaths, method and location of disposal.

5. Litter Removal

- a. Place litter in stacking structure if available. Do not stack old litter next to new or wet litter next to dry.
- b. Cover any litter stacks for temporary storage with plastic and weight down the edges. Cut a 4" diameter hole in the top and cover the hole with screen wire.

6. Fire

- a. Stop all other activities to deal with the emergency.
- b. Try to extinguish the fire with the appropriately rated fire extinguishers.
- c. If fire cannot be contained, call for help (See Table below.)

7. Assess the extent of the spill and note any obvious damages.

- a. Did the by-product reach any surface waters?
- b. Approximately how much was released and for what duration?
- c. Any damage noted, such as employee injury, fish kills, or property damage?
- d. Did the spill leave the property?
- e. Did the spill have the potential to reach surface waters?
- f. Could a future rain event cause the spill to reach surface waters?
- g. Are potable water wells in danger (either on or off of the property)?
- h. How much reached surface waters?

8. Provide the following information when reporting an emergency.

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- a. Your name and phone number.
 - b. Directions to the farm.
 - c. Description of emergency.
 - d. Estimate of the amounts, area covered, and distance traveled.
 - e. Has litter reached surface waters or major field drains?
 - f. Is there any obvious damage: employee injury, fish kill, or property damage?
 - g. What is currently in progress to contain situation?
9. **Implement procedures** as advised by TDEC and technical assistance agencies to rectify the damage, repair the system, and reassess the litter management plan to keep problems with release of litter from happening again.
10. **Documentation.** The following items shall be documented in writing and filed with the Emergency Action Plan for future reference and emergency response training.
 - a. Date and time, location of spill, affected landowners.
 - b. Affect of litter spill on any surface water body or potable water well.
 - c. Approximately how much litter was released and for what duration.
 - d. Amount of litter, if any, which left the farm property.
 - e. Any damage, such as personal injury, fish kill, property damage.
 - f. Cause of the spill.
 - g. Procedure to handle the emergency.
 - h. Clean up efforts.
 - i. List of authorities called; those that responded, and the time it took for them to respond.
 - j. Recommendations to prevent a reoccurrence

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Table 5: Information and Important Phone Numbers for Emergency Response

Farm Information

	Anthony R. Miller
	164 Hotel Road Flintville ,TN 37335
	931-937-7600 cell: 931-607-9003
	GO NE ON TN-275 TOWARD SNOW LAKE LN .4 MI;TURN R ONTO PENDERGRASS RD GO 2 MI; TURN R ONTO US 64 GO 3.1 MI;TURN L ONTO HOTEL RD GO 1.1 I; 160 HOTEL IS ON RIGHT

Farm Contacts

	First Name	Last Name	Phone Number	Cell Phone	Emergency Phone
	Anthony	Miller	931-937-7600		
	Anthony	Miller	931-937-7600		
		911	911	911	911

Agency Contacts

	Agency	Phone Number	Emergency Phone
		931-840-4156	
		615-837-5047	
		941-433-9821	TN Division Of Water Pollution Control
	County Office	931-438-2450	
	County Office	931-433-1582	
		931-684-8180	

Property Owner Contacts

	First Name	Last Name	Phone Number
Anthony Miller	164 Hotel Rd	Flintville, TN	931-937-7600

3. Land Treatment Practices

This element addresses evaluation and implementation of appropriate conservation practices on sites proposed for land application of litter and organic by-products from an Animal Feeding Operation. On fields where litter and organic by-products are applied as beneficial nutrients, it is essential that runoff and soil erosion be minimized to allow for plant uptake of these nutrients.

Since no land application of litter is planned, there is no need for land treatment practices, except as necessary during construction to prevent erosion and sediment transport. See section 3.2 below.

3.1. Land Treatment Practices and Expected Results

3.1.1. Land Treatment Practices

Plan for Establishing Vegetation

Vegetation establishment is required around the buildings and storage structures to reduce soil erosion, this offsite nutrient and pathogen transport.

All disturbed areas including slopes of pads will be planted to permanent vegetation. If construction is during seasons not suited for planting warm or cool season grasses, temporary vegetation will be established until the recommended planting dates. Refer to NRCS practice standard 342, Critical Area Treatment, for guidance.

4. Nutrient Management

Because no land applications are planned, the nutrient management section is unnecessary.

Litter agreement will be signed as litter is removed.

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5. OPERATION AND MAINTENANCE

This section addresses the operation and maintenance of the litter management system, conservation practices, litter/compost testing, and equipment calibration.

Operation and maintenance of structural, non-structural, and land treatment measures requires effort and expenditures throughout the life of the practice to maintain safe conditions and assure proper functioning. Operation includes the administration, management, and performance of non-maintenance actions needed to keep a completed practice safe and functioning as planned. Maintenance includes work to prevent deterioration of practices, repairing damage, or replacement of the practice if one or more components fail. Listed below is the operation and maintenance for the structural, non-structural, and land treatment measures Anthony R. Miller.

5.1. Item Specific Operation and Maintenance

342-Critical Area Planting guide can be found at any NRCS office.

Record Keeping

Refer to the Record Keeping Section of this CNMP.

Listed below are the Records and Annual Report that should be kept.

The following records shall be retained and available for inspection, upon request by the commissioner, an agent of the division or the EPA for five years.

1. A copy of the CAFO's site-specific nutrient management plan
2. Documentation regarding the following visual inspections:
 - a. Weekly inspections of all storm water diversion devices, runoff diversion structures and devices channeling contaminated storm water to the wastewater and manure storage and containment structure.
 - b. Daily inspections of water lines, including drinking and cooling water lines, and
 - c. Weekly inspections of the manure, litter, and process wastewater impoundments noting the liquid level in the impoundments
3. Corrective actions taken (if deficiencies are not corrected within 30 days of notice of deficiency. The records must include an explanation of the factors preventing immediate correction
4. Mortality management and practices used to comply with the nutrient management plan
5. Records documenting the current design of any manure or litter storage structures, including the volume of solid accumulation, design treatment volume, total design volume and approximate number of days of storage capacity.
6. Records of the date, time and estimated volume of any overflow
7. Results from manure, litter, process waste water, and soil sampling
8. The date, recipient name and address and approximate amount of litter transferred to a 3rd party
9. Submit an annual report to TDEC.
10. Keep records of daily temperature and rainfall.

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5.2. Air Quality

Odor and Pathogen Management

It may not be practical or feasible to eliminate all odor emissions from the operation, but it is possible to manage or mitigate the odor. Some variables that effect odor are:

Type of operation	Building design	RECEIVED
Ventilation method	Animal numbers	
Animal diets	Manure treatment system	MAR 31 2011
Season	Topography	
Management skill or effort		TN Division Of Water Pollution Control

a. **Animal Cleanliness**

- b. Clean, dry, and healthy animals are less odorous. Dirty, manure-covered animals promote accelerated bacterial growth and the production of odorous gases.
- c. Animal stress can also be correlated to an increase in odor production. Ventilation and environmental controls for the buildings must be properly designed and maintained to keep the animals healthy.

d. **Minimize Dust**

- e. It has been established that there is a correlation between dust and odor emission. Dust particles adsorb and concentrate odorous compounds. As the dust particles are carried by the wind, so is the odor.
- f. Therefore, minimizing dust will reduce odor. Most farm dust comes from feed, fecal matter and, in the case of poultry, from feathers and litter. Dust also comes from animal skin, insects, and other sources.
- g. Buildings should be cleaned of all dust between batches of animals (including fans, shutters, and screens).

h. **Waste Storage Facility** - to reduce emissions of greenhouse gases, ammonia, volatile organic compounds, and odor:

- i. Consider alternatives and additional practices including covered anaerobic digesters (365), and composting facilities (317).
- j. Adjusting pH below 7 may reduce ammonia emissions from the waste storage facility but may increase odor when waste is surface applied.
- k. Consideration should also be given to the separation of the solids from the waste mixture. This will dilute the liquid waste product being treated in the lagoon and cause less odor. The solid separated material can be composted and sold or land applied.

l. **Animal diets** can also be manipulated to produce less waste and a less odorous waste.

m. **Proper Disposal of Mortality** - Normal mortality for the animal feeding operation *must* be properly handled for both odor control and biological security of the operation. Composting, incineration, and rendering are acceptable methods for mortality disposal.

n. **Good Fly and Rodent Control Programs** - These programs must be a continuous process on the farm. When feed and waste products are properly handled, these problems are minimized.

o. **Utilize Trees** - While trees should not grow directly adjacent to facilities, wind breaks of trees correctly positioned near the facility not only create a visual barrier but can also provide a large filtration surface for dust and odorous compound removal. Trees can adsorb odorous compounds and create turbulence that enhances odor dispersion and dilution. Trees also can create a cooler microclimate around the facility, which can reduce odors.

p. **Land application**

- q. Note wind direction and avoid spreading when the wind is blowing toward populated areas.
- r. Avoid spreading on weekend/holidays when people are likely to be engaged in nearby outdoor and recreational activities.

- s. Spread in the morning when air begins to warm and is rising, rather than in the afternoon.
- t. Use available weather information to best advantage. Turbulent breezes will dissipate and dilute odors. Hot and humid weather tends to concentrate and intensify odors, particularly in the absence of breezes. Rain will remove the odor from the atmosphere.
- u. Use natural vegetation barriers, such as woodlots or windbreaks, to help dissipate and filter odors.
- v. Establish vegetated air filters in field border area by planting conifers and shrubs as windbreaks and visual screens between cropland and residential developments.

Pathogen management

Many of the same conservation practices used to prevent nutrient movement from this animal feeding operation, such as runoff and erosion control are likely to minimize the movement of pathogens. Pathogenic organisms occur naturally in animal wastes. Exposure to some pathogens can cause illness to humans and animals, especially for immune-deficient populations.

Vector Control and Abatement

Management and sanitation are the real keys to preventing or eliminating any vectors' problems. If these weaknesses are not addressed, the problems will recur. Pesticides are the final tools in controlling the problem.

- A. Most problems with insects (such as flies), rodents (such as rats and mice) and scavenging animals, (such as dogs, cats, foxes, possums, raccoons, etc.) can be minimized by keeping the facility and surroundings clean and properly maintained. This includes:
 - B. Removing all excess building materials.
 - C. Removal of any excess feed from the houses or around bins.
 - D. Keeping grass and weeds mowed
 - E. Keeping all buildings free of trash and debris.
 - F. The proper use and servicing of bait stations.
 - G. Proper and timely disposal of dead animals.
 - H. Keeping all manure cleaned up caused by spillage from around the houses. Keep all temporary stored manure covered and dry.
 - I. Any spillage of feed should be cleaned as soon as possible and all feed will be kept dry. Covers on feed storage bins should be used. Drainage away from all feed storage containers should be provided to reduce moisture accumulation.

Actions to be taken for the abatement of an insect problem:

- | | |
|----|---|
| 1) | Mow vegetation around facility. |
| 2) | Clean up any spilled feed. |
| 3) | Repair or replace equipment that is spilling feed. |
| 4) | Use covers to prevent feed from getting wet. |
| 5) | Dispose of any wet or contaminated feed. |
| 6) | Check for leaks from waterers, etc. and repair as needed. |
| 7) | Remove any garbage or trash from the facility. |
| 8) | Remove and dispose of all dead animals immediately and appropriately. |
| 9) | Use approved baits, poisons, etc. as appropriate. |

Actions to be taken for the abatement of a rodent problem:

- 3) Mow vegetation around facility.
- 4) Clean up any spilled feed.

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- 5) Repair or replace equipment that is spilling feed.
- 6) Use covers to prevent feed from getting wet.
- 7) Dispose of any wet or contaminated feed.
- 8) Remove all excess building materials.
- 9) Remove any garbage or trash from the facility.
- 10) Check for damage or leaks from waterers, etc. and repair as needed.
- 11) Remove and dispose of all dead animals immediately and appropriately.
- 12) Use approved baits, poisons, etc. as appropriate.

Actions to be taken for the abatement of scavenging animal problems:

1. Remove and dispose of all dead animals immediately and appropriately.
2. Mow vegetation around facility
3. Clean up any spilled feed.
4. Repair or replace equipment that is spilling feed.
5. Use covers to prevent feed from getting wet.
6. Dispose of any wet or contaminated feed.
7. Remove all excess building materials.
8. Remove any garbage or trash from the facility.
9. Check for digging activities that could damage or weaken buildings and repair as needed.
10. Contact the proper officials for additional control measures.

For more details on specifics (rats, filth flies, etc.) information may be obtained from the Clemson Agricultural Extension Offices or the NRCS office. A source of information is also available from Clemson's South Carolina Confined Animal Manure Manager's program, in Chapter 10 of the applicable species, available at:

5.3. Mortality Disposal

Composting – Poultry

For proper composting, correct proportions of carbon, nitrogen, moisture, and oxygen need to be present in the mix. Common carbon sources are sawdust or wheat straw. It is desirable because of its bulking ability, which allows entry of oxygen. Other carbon sources that could be used are peanut hulls, cottonseed hulls, sawdust, leaves, etc. If lab testing of the litter or experience indicates that the carbon/nitrogen ratio is adequate (20 - 35:1 ratio), then litter alone should be sufficient for composting mortality as long as desirable bulking ability is achieved and moisture is properly managed. Moisture management is critical and must be maintained between 40 and 55 percent (40% -does not leave your hand moist when squeezed, 55% - if more than two drops drip from your hand the material is too moist).

Recipe for composting broiler mortality

INGREDIENT	VOLUME	WEIGHTS
Straw	1.0	0.10
Carcasses	1.0	1.0
Litter	1.5	1.2
Water	0.5	0.75

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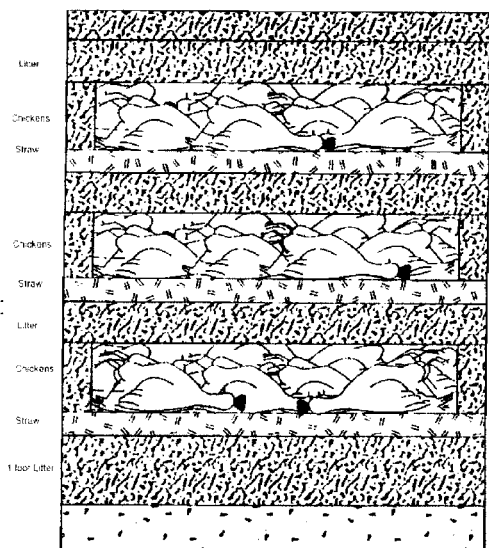
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Compost layering procedure

1. The first layer is one foot of litter.
2. A 4-6 inch layer of carbon amendment (sawdust is preferred) is added according to the recipe

3. A layer of carcasses is added. Carcasses shall be laid side-by-side and shall not be stacked on top of one another. Carcasses placed directly on dirt or concrete floors, or against bin walls will not compost properly.
4. Water is added (uniform spray).
5. Carcasses are covered with a 6-inch layer of litter.
6. Next layer of carcasses begun with carbon amendment and above steps repeated.
7. When compostor is full, cap the 6-inch layer with four additional inches.



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Maintain the moisture content at 40 to 55 percent during the composting process (40% - does not leave your hand moist when squeezed, 55% will allow about one drop of water to be released when squeezed, > 55% - if more than two drops drip from your hand the material is too moist, therefore add sawdust or dry carbon source).

Temperature is the primary indicator to determine if the composting process is working properly. A minimum temperature of 130° F shall be reached during the composting process. A temperature of 140° F is optimum; however, temperatures may range up to 160° F. If the minimum temperature is not reached, the resulting compost shall be incorporated immediately after land application or recombined by turning and adding moisture as needed. Compost managed at the required temperatures will favor destruction of any pathogens and weed seeds.

Good carcass compost should heat up to the 140° range within a few days. Failure of the compost material to heat up properly normally results from two causes. First, the nitrogen source is inadequate (example wet or leached litter). A pound of commercial fertilizer spread over a carcass layer will usually solve this problem. Secondly, the compost fails when too much water has been added and the compost pile becomes anaerobic. An anaerobic compost bin is characterized by temperatures less than 120°, offensive odors, and black oozing compound flowing from the bottom of the compost bin. In this case a drier bulking / carbon amendment should be added to dry the mix. Then, the material should be remixed and composted.

It is possible, though unlikely, for the temperature to rise above the normal range and create conditions suitable for spontaneous combustion. If temperature rises above 170° F, the material should be removed from the bin and cooled, spread on the ground to a depth not to exceed six inches in an area away from buildings. Water should be added only if flames occur. If temperature falls significantly during the composting period and odors develop, or if material does not reach operating temperature, investigate piles for moisture content, porosity, and thoroughness of mixing.

After this first stage process, the material should be turned into a second bin and allowed to go through a second heat process. For larger birds, especially turkeys, a third turning may be necessary for complete degradation of the birds. Typically, the process can be considered "done" within 21-28 days from the time the compost is filled for broilers. For turkeys, the process usually requires about 60 days. After the heat process, curing period of one to three months is usually required before the material is stable.

Compost may be land applied after the secondary or tertiary composting. If any animal parts are still in the mix, the material must be incorporated. If immediate application is not possible the material should be stored using the same requirements as that of stored litter in the Stacking Shed O&M statement.

Inspect compost structure at least twice annually when the structure is empty. Replace any broken or badly worn parts or hardware. Patch concrete floors and curbs as necessary to assure water tightness. Examine roof structures for structural integrity and leaks. Inspections shall be documented on the attached worksheet.

The primary and secondary composters and the litter storage area should be protected from outside sources of water such as rain or surface runoff.

In order to assure desired operation of the composting facility, daily records should be kept during the first several compost batches. This can be helpful in identifying certain problems that may occur.

Incinerator

Incinerators used for dead animal disposal shall be properly operated and maintained. Operation shall be as specified in the owner's manual provided with the incinerator. The owner's manual shall be kept on site and made available upon request.

The use of the incinerator to dispose of waste oil, hazardous, or any other waste chemical is prohibited.

The use of the incinerator shall be limited to dead animal disposal only unless otherwise approved. Incinerators shall be operated in such a manner as is necessary to prevent the emission of objectionable odors.

The incinerator shall have yearly maintenance performed, as necessary. Replace firebricks and scrape and repaint metal components, particularly the fluestock, with heat resistant outdoor paint.

Burial

Dig a large pit or trench as located on the plan map.

Insert dead animals daily, and cover them with one to two feet of soil.

The pit should be graded so that it does not impound water. Runoff from the pit should flow into a grass filter. Note: When adequate drainage is not provided, these pits or trenches fill with water and carcasses may actually float to the surface. The water in the pit is very bacteria-laden and may be a hazard to both animal and human health. There is also high potential for ground water contamination from both bacteria and nutrients.

Burial trenches and pits must have at least a 2.0-foot separation between the bottom of the trench and groundwater.

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The pits should also have a berm to divert rainfall and runoff from the site. The soil should be able to infiltrate any rainfall that falls directly into the pit.

Vectors (dogs, rats, snakes, flies, etc.) are potential problems in a burial situation. The carcasses must be covered daily as to reduce vectors in and around the trench or pit.

When a burial pit is full, the site shall be capped with a mound of soil so that precipitation is not allowed to collect in the closed pit. Soil shall cover the carcasses a minimum of 2 feet. The area shall be grassed as to prevent erosion. The burial area shall be monitored so that these conditions remain after settling of decomposing carcasses and capping material.

- a. Must provide a minimum of 30-inches of suitable cover over the carcass.
- b. Bottom of burial pit must be at least two-feet above highest ground water elevation.
- c. Must be greater than 100 feet from private well.

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6. Record Keeping

It is important that records are kept to effectively document and demonstrate implementation activities associated with CNMPs. Documentation of management and implementation activities associated with a CNMP provides valuable benchmark information for the producer that can be used to adjust his/her CNMP to better meet production objectives. It is the responsibility of AFO owners/operators to maintain records that document the implementation of CNMPs.

The CNMP requires the producer to maintain these records for no less than 5 years. It is the producer's responsibility to ascertain the minimum time required for archiving the records listed below. In some cases, if certain USDA programs are in effect, the records may need to be kept as long as fifteen years.

Also, if the operation requires a permit, annual reporting may be necessary.

Records may be kept in a number of ways:

- Forms are available from the NRCS.
- Record forms may be obtained from University of Tennessee Agricultural Extension Service (Publication 1644)
- You may develop your own records system provided that all necessary information is included.

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6.1. Documentation

The Table below shows which of the CNMP reports are required by NRCS to document plan implementation. As applicable, records include:

Table 6: Records to be maintained by Producer Farms

Record	Record Description	Frequency	Format	Retention	Required
Annual Report	TDEC and TDA require a report that summarizes the operational details of a permitted farm.	Annually	Suggested format included	5	y
Monthly Animal and Mortality Count	Dates and numbers of dead collected and method of disposal.	Monthly	Suggested format included	5	y
Litter Nutrient Analysis	A litter analysis must be completed annually, for each litter storage containment and prior to transport off the farm. It is essential that the rate of litter allocated be revisited each year using the current analysis data to make those decisions.	Annually	Suggested format included or Keep Test Reports	5	y
Transfer of litter offsite to third parties	a. Litter nutrient content b. Amount of litter transferred c. Date of transfer d. Recipient of litter	Event Driven	Suggested format included	5	y

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Monthly Animal and Mortality Count

Animal/Type:

Year:

Production Phase:

Month	Animal Count and Weight	Mortality	Mortality %	Comments
January				
February				
March				
April				
May				
June				
July				
August				
September				
October				
November				
December				

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ANNUAL REPORT

Operation Name:

Date Submitted:

1. Number and types of animals on site.	Types:	Number:	
2. Estimated amount of litter, litter, compost and/or process wastewater generated in the previous calendar year.	Amount:		
3. Estimated amount of litter, litter, compost and/or process wastewater transferred to a 3rd party in the previous calendar year.	Amount Transferred:		
4. Total number of acres for land application covered by the nutrient management plan.	Acres:		
5. Total number of acres under control of the landowner that were used for land application of litter, litter, compost and/or process wastewater in the previous calendar year.	Acres:		
6. Summary of all litter, litter and/or process wastewater discharges to waters of the state from the production area that have occurred in the previous calendar year, include date, time and approximate volume.	Date:	Time:	Volume:
7. The current version of the Comprehensive Nutrient Management Plan was developed and/or approved by a certified nutrient management planner.	Yes/No	Comments:	

Mail a completed form to the following agencies:
Tennessee Department of Environment and Conservation
Division of Water Pollution Control
6th Floor L&C Annex, 401 Church Street
Nashville, TN 37243

And

Tennessee Department of Agriculture
Ellington Agricultural Center
P.O. Box 40627
Nashville, TN 37204

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STORMWATER DIVERSION DEVICES, RUNOFF DIVERSION STRUCTURES, AND WASTE STORAGE FACILITIES

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6.2. Litter Analysis Reports

Litter Analysis Reports

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AGRICULTURAL DIAGNOSTIC LABORATORY
UNIVERSITY OF ARKANSAS - FAYETTEVILLE

***MANURE FOR FERTILIZER ANALYSIS (report for AGRI-429)

Name:	ANTHONY R. MILLER	Received in lab:	2/07/2011
Address:	160 HOTEL RD.	Mailed:	2/16/2011
City:	FLINTVILLE	State, Zip:	TN 37335
County:	LINCOLN (TN)	CK#:	3086

Lab. No.	M10174					
Sample No.	1					
Animal type	hens					
-age/lbs	none given					
Bedding type	none					
Manure type	cleanout					
Sample date	1/28/2011					
Age of manure	fresh					
pH	8.7					
EC(umhos/cm)	7870					
% H2O	32.40					

-on dry basis-

Total %N	4.08					
Total %P	1.69					
Total %K	2.53					
Total %Ca	9.60					
Total %Carbon	32.32					
NO3-N, mg/kg						
NH4-N, mg/kg						

-on as-is basis-

Total %N	2.76					
Total %P	1.14					
Total %K	1.71					
Total %Ca	6.49					
Total %Carbon	21.85					
NO3-N, mg/kg						
NH4-N, mg/kg						

-lbs/ton on as-is basis-

N	55.2					
P2O5	52.2					
K2O	41.4					
Ca	129.8					
Total Carbon	437.0					
NO3-N						
NH4-N						

***all analyses performed on "as-is" basis/ "dry" basis is calculated from moisture content

*lbs/ton P2O5 = %Total P on "as-is" basis multiplied by 20*2.29

*lbs/ton K2O = %Total K on "as-is" basis multiplied by 20*1.2

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7. Appendix A: Notices of Intent

Notices Of Intent

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Tennessee Department of Environment and Conservation
Division of Water Pollution Control
401 Church Street, 6th Floor L & C Annex
Nashville, TN 37243-1534
Phone: (615) 532-0625

PERMIT CONTACT INFORMATION

Please complete all sections. If one person serves multiple functions, please repeat this information in each section.

PERMIT NUMBER: _____

DATE: _____

PERMITTED FACILITY: Anthony R. Miller

COUNTY: Lincoln

OFFICIAL PERMIT CONTACT:

(The permit signatory authority, e.g. responsible corporate officer, principle executive officer or ranking elected official)

Official Contact:	<u>Anthony R. Miller</u>			Title or Position:	<u>Owner</u>		
Mailing Address:	<u>160 Hotel Rd</u>			City:	<u>Flintville</u>	State:	<u>TN</u>
Phone number(s):	<u>931-937-7600 / 931-607-9003</u>			E-mail:	<u>tonymiller1219@aol.com</u>		

PERMIT BILLING ADDRESS (where invoices should be sent):

Billing Contact:	<u>Anthony R. Miller</u>			Title or Position:	<u>Owner</u>		
Mailing Address:	<u>160 Hotel Rd</u>			City:	<u>Flintville</u>	State:	<u>TN</u>
Phone number(s):	<u>931-937-7600 / 931-607-9003</u>			E-mail:	<u>tonymiller1219@aol.com</u>		

FACILITY LOCATION (actual location of permit site and local contact for site activity):

Facility Location Contact:	<u>Anthony R. Miller</u>			Title or Position:	<u>Owner</u>		
Facility Location (physical street address):	<u>164 Hotel Rd</u>			City:	<u>Flintville</u>	State:	<u>TN</u>
Phone number(s):	<u>931-937-7600 / 931-607-9003</u>			E-mail:	<u>tonymiller1219@aol.com</u>		

Alternate Contact (if desired):

Mailing Address:				City:			
Phone number(s):				E-mail:			

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FACILITY REPORTING (Discharge Monitoring Report (DMR) or other reporting):

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Cognizant Official authorized for permit reporting:	<u>Anthony R. Miller</u>			Title or Position:	<u>Owner</u>		
Mailing Address:	<u>160 Hotel Rd</u>			City:	<u>Flintville</u>	State:	<u>TN</u>
Phone number(s):	<u>931-937-7600 / 931-607-9003</u>			E-mail:	<u>tonymiller1219@aol.com</u>		
Fax number for reporting:				Does the facility have interest in starting electronic DMR reporting? Yes No			



Tennessee Department of Environment and Conservation,
Division of Water Pollution Control
401 Church Street, 6th Floor L & C Annex, Nashville, TN 37243
(615) 532-0625

**CONCENTRATED ANIMAL FEEDING OPERATION (CAFO)
STATE OPERATING PERMIT (SOP) APPLICATION**

Type of permit you are requesting: ☐ SOPCD0000 (designed to discharge) ☒ SOPC00000 (no discharge) ☐ Unknown, please advise
Application type: ☐ New Permit ☒ Permit Reissuance ☐ Permit Modification
If this NOI is submitted for Permit Modification or Reissuance provide the existing permit tracking number: _____

OPERATION IDENTIFICATION

Operation Name:	Anthony R Miller		County:	Lincoln
Operation Location/ Physical Address:	164 Hotel Rd Flintville TN 37335		Latitude:	35° 04' 41.882" N
			Longitude:	86° 19' 38.527" W
Name and distance to nearest receiving water(s):	South Fork of Indian Creek 2305'			
If any other State or Federal Water/Wastewater Permits have been obtained for this site, list those permit numbers:				
Animal Type:	<input checked="" type="checkbox"/> Poultry <input type="checkbox"/> Swine <input type="checkbox"/> Dairy <input type="checkbox"/> Beef <input type="checkbox"/> Other _____			
Number of Animals:	44,250 total	Number of Barns:	3	Name of Integrator: Tyson Foods
Type of Animal Waste Management: (check all that apply)	<input checked="" type="checkbox"/> Dry <input type="checkbox"/> Liquid <input type="checkbox"/> Liquid, Closed System (i.e. covered tank, under barn pit, etc.)			
Attach the NMP with the NOI	<input checked="" type="checkbox"/> NMP Attached	Attach a site location topographic map	<input checked="" type="checkbox"/> Map Attached	

PERMITTEE IDENTIFICATION

Official Contact (applicant):	Anthony R Miller			Title or Position:	Owner		
Mailing Address:	160 Hotel Rd Flintville TN 37335			City:	Flintville	State:	TN
Phone number(s):	931-937-7600 / 931-607-9003			E-mail:	tony.miller@tyson.com		
Optional Contact:				Title or Position:			
Address:				City:		State:	
Phone number(s):				E-mail:			

APPLICATION CERTIFICATION AND SIGNATURE (must be signed in accordance with the requirements of Rule 1200-4-5-.05)

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name and title; print or type	Signature	Date
Anthony R. Miller - owner	Anthony R Miller	3-26-11

STATE USE ONLY

Received Date	Reviewer	EFO	T & E Aquatic Fauna	Tracking No.
	Impaired Receiving Stream	High Quality Water		NOC Date

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8. Appendix B: Copy of Engineering Plans and Specifications

If these are needed Tyson Foods should be contacted.

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APPENDIX B

Agreement for the Removal of Litter, Manure and/or Process Wastewater from an AFO

The conditions listed below help to protect water quality. These conditions apply to litter, manure and/or process wastewater removed from an AFO. This agreement is for (amount of waste removed, i.e. tons, gallons, etc.)

750 - 800 tons of waste, removed on (date) as needed, from the facility owned by Anthony R. Miller and located at 164 Hoft Rd, Flintville TN 37335

- A. The litter, manure and/or process wastewater must be managed to ensure there is no discharge of litter, manure and/or process wastewater to surface or groundwater.
- B. When removed from the facility, litter, manure and/or process wastewater should be applied directly to the field or stockpiled and covered with plastic or stored in a building.
- C. Litter, manure and/or process wastewater must not be stockpiled near streams, sinkholes, wetlands or wells.
- D. Fields receiving litter, manure and/or process wastewater should be soil tested at least every two or three years.
- E. A litter, manure and/or process wastewater nutrient analysis should be used to determine application rates for various crops.
- F. Calibrate spreading equipment and apply litter, manure and/or process wastewater uniformly.
- G. Apply no more nitrogen or phosphorus than can be used by the crop.
- H. A buffer zone is recommended between the application sites and adjacent streams, lakes, ponds, sinkholes and wells. The following non-application buffer widths, taken from NRCS Conservation Practice Standard 590, should be used when applicable:

Object, Site	Buffer Width, feet	Situation
Wells	150	Up-slope of application site
	300	Down-slope of application site, if conditions warrant application
Waterbody	30-100	Depending on the amount and quality of vegetation and slope
Public Use Area	300	All
Residences	300	Other than producer

- I. Do not apply litter, manure and/or process wastewater when the ground is frozen, flooded, saturated or on steep slopes subject to flooding, erosion or rapid runoff.
 - J. Cover vehicles hauling litter, manure and/or process wastewater on public roads.
 - K. Keep records of locations where poultry litter will be used as a fertilizer.
- I, _____ am the person receiving litter, manure, and/or
(name)
process wastewater and do understand the conditions listed above.

(signature)

(date)

(address)

(phone)

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9. Appendix C: Land Requirements for Exported Litter

The values in the following report(s) should only be used as a guide for the producer and litter hauler. The 'Acreage Required' column in each report gives the acreage of each crop - at various yields - necessary to utilize all of the litter associated with that event. It is assumed that 50% of the nitrogen concentration given in the analysis is plant available and that the litter is applied at a nitrogen application rate.

Table 7: Suggested Nitrogen Rates and Timing Guidelines for Litter Use: Field and Forage Crops^{1,2}

Year	County	Field No.	Size (ac)	Yr	Area (ac)	Height	Notes	Photo	Dist
Field No.	County Name	Field Level	Nitrogen Application Rate (lb/acre)	Application Time	Acres Required				
1998	1998-1999	100-125 bu.	120	at planting					
		125-150 bu.	150	at planting					
		150-175 bu.	180	at planting					
		175-200 bu.	210	at planting					
		200-225 bu.	240	at planting					
	1998-1999	15-18 tons	120	at planting					
		19-25 tons	150	at planting					
		above 25 tons	180	at planting					
	1998-1999	30-70 bu/acre	60	Feb. 15 - March 15					
	1998-1999	50-100 bu/acre	90	at planting					
1999	1999-2000		110	early to mid March before bolting					
	1999-2000		200	at planting					
	1999-2000	Common or Hybrids	30	at planting					
	1999-2000	Common Pasture 1-2 tons/acre	60	May 1					
	1999-2000	Common Pasture 3-6 tons/acre	180	May 1					
	1999-2000	Hybrid Pasture 1-4 tons/acre	120	May 1					
	1999-2000	Hybrid Pasture 5-6 tons/acre	180	May 1					
	1999-2000	Hybrid Hay 1-6 tons/acre	120	May 1					
	1999-2000	Hybrid Hay 7-12 tons/acre	400	Split total into 3 applications May 1, June 1, July 1					
	1999-2000	Seeded before June 20	120	at planting					
2000	2000-2001	Seeded after June 20	60	at planting					
	2000-2001	Establishment	30	at planting					

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		Maintenance spring pasture only (1-2 tons/acre)	45	March	
		Maintenance spring hay and fall stockpile	105	split total application half in March and half in July	
		Establishment	30	at planting	
		Maintenance spring hay only (1-3 tons/acre)	105	March	
		Maintenance spring hay and fall stockpile	165	split total application 2/3 in March and 1/3 in July	
		1-3 tons/acre	120	March	
		Fall grazing	60	at planting	
		Spring grazing	45	March 1	
		Spring hay or silage	60	March 1	

1/Producer must select the correct yield level based on a knowledge of yield potential for field soil type or field yield history from farm records.

2/Adapted from: P&SS Information Sheet #185, Lime and Fertilizer Recommendations for the Various Crops of Tennessee

3/This value considers all solid organic sources in the plan and their corresponding analysis. The annually available litter is then multiplied by the TKN in the analysis and factored by .5 to derive the acreage required per source. These derived acreages are then summed if the plan contains more than one solid organic nutrient source.

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